

[1] A. Natesan, "Kinematic analysis and synthesis of four-bar mechanisms for Kinematic analysis and synthesis of four-bar mechanisms for straight line coupler curves straight line coupler curves." Available:

<https://repository.rit.edu/cgi/viewcontent.cgi?article=5662&context=theses>

This thesis simulated various four bar linkages and plotted their relative paths of motion. It also includes the kinematic modeling for these, as well as statistical evidence of the simulated motions to outline the motion.

[2] L. Du, S. Ma, K. Tokuda, Y. Tian, and L. Li, "Bidirectional Locomotion of Soft Inchworm Crawler Using Dynamic Gaits," *Frontiers in Robotics and AI*, vol. 9, Jun. 2022, doi:

<https://doi.org/10.3389/frobt.2022.899850>

This article demonstrates a soft robotics application that utilized inch worm style locomotion and directional friction on the two points of contact in order to move the system forwards. This robot used the flexibility of its material as well as differing amounts of friction to propel itself forwards.

[3] Zhang, Houxiang. (2009). Crawling gait realization of the mini-modular climbing caterpillar robot. *Progress in Natural Science - PROG NAT SCI*. 19. 1821-1829.

10.1016/j.pnsc.2009.07.009.

<https://www.sciencedirect.com/science/article/pii/S1002007109002871>

This article helped us to visualize how a non-flexible, inch-worm style locomotion was possible. By creating differing angles between the various links of the robot, the authors are able to demonstrate how to move rigid length joints in inch-worm style locomotion.

[4] I. Fitzner, Y. Sun, V. Sachdeva and S. Revzen, "Rapidly Prototyping Robots: Using Plates and Reinforced Flexures," in *IEEE Robotics & Automation Magazine*, vol. 24, no. 1, pp. 41-47, March 2017, doi: 10.1109/MRA.2016.2639058. keywords: {Legged locomotion;Laser beam cutting;Plastics;Fabrication;Optical fiber devices;Torque control;Robots},

<https://ieeexplore.ieee.org/document/7862195>

This article by Professor Revzen was provided during the building portion of project 0. During our rework stage, this article provided information regarding how to create strong style hinges using tape.

[5] M. Vielmetti, R. Donoghue, and H. Huang, “2023-P0-red-final.pdf,” HRB Wiki, <https://wiki2.eecs.umich.edu/instances/hrb/index.php?title=File:2023-P0-red-final-graded.pdf&page=1>.

This document is the report for the 2023 red team. They created a square, linkage style, scuttle robot that we tried to emulate. Their robot motion and linkage mechanism seemed the easiest for us to recreate, so we used their video results and reported times to assess feasibility.

[6] J. Chapman, S. Kim, and S. Thakkar, “EECS 464: Hands on Robotics Project 0 Final Report,” HRB Wiki, [https://wiki2.eecs.umich.edu/instances/hrb/index.php/File:Final\\_Report\\_P0\\_18\\_Green.pdf](https://wiki2.eecs.umich.edu/instances/hrb/index.php/File:Final_Report_P0_18_Green.pdf).

This document is the report for the 2018 green team. They created an inch-worm style robot that we considered using inspiration from during our brainstorming phase of the project.

[7] D. Eliassen, Z. Feng, and S. Shen, “Project 0: Asymmetrical Friction Walker Final Report,” HRB Wiki, <https://wiki2.eecs.umich.edu/instances/hrb/index.php?title=File:MaizeP0Report.pdf&page=2>.

This document is the report for the 2016 maize team. They created a W-shaped scuttle robot. Their robot continues to be inspiration for future iterations of scuttle style robots, including 2023 red team.